

**Connecticut Clean Diesel Plan  
Special Act 05-7  
Connecticut Diesel Emissions Control  
Technologies Forum**

**DOC & DPF Technology Choices**

Presented by

**Engine Control Systems**

In conjunction with

**E Global Solutions**

**August 17<sup>th</sup>, 2005**

# Agenda Items

- EPA common emission reduction devices
  - What they are
  - How to chose them
  - What to consider

# AZ Purifier™ & AZ Purimuffler

# Steps to a successful DOC installation

- Consult regulations, laws, enforcement  
Consider cost, usage, and fuel options
- Consider Purifier vs. Direct Fit
- Determine product and all accessories
- Schedule installation
- Follow up inspection, warranty forms, reporting
- Maintenance planning
- After sales support

# AZ Purifiers and AZ Purimufflers

- Diesel oxidation catalyst
  - reduces PM by 20-50%
  - reduces odor, HC and CO
- Available as HD Purifiers and Purimufflers, SD Purifiers and Purimufflers and Direct Fits
- Fuel sulfur tolerant



# Installation

- Remove the muffler and install the AZ Purimuffler with new clamps (use existing brackets, direct fit means DIRECT FIT)
- Install the Purifier upstream of the muffler (between the engine and muffler) with new clamps. No additional support is required.
- Make sure if the DOC is rigid to the chassis there is flex before the inlet of the AZ Purimuffler.
- If the DOC is part of the engine, the flex must be installed after the DOC.

# Maintenance

- The AZ Purifier and AZ Purimuffler are maintenance free products

HOWEVER

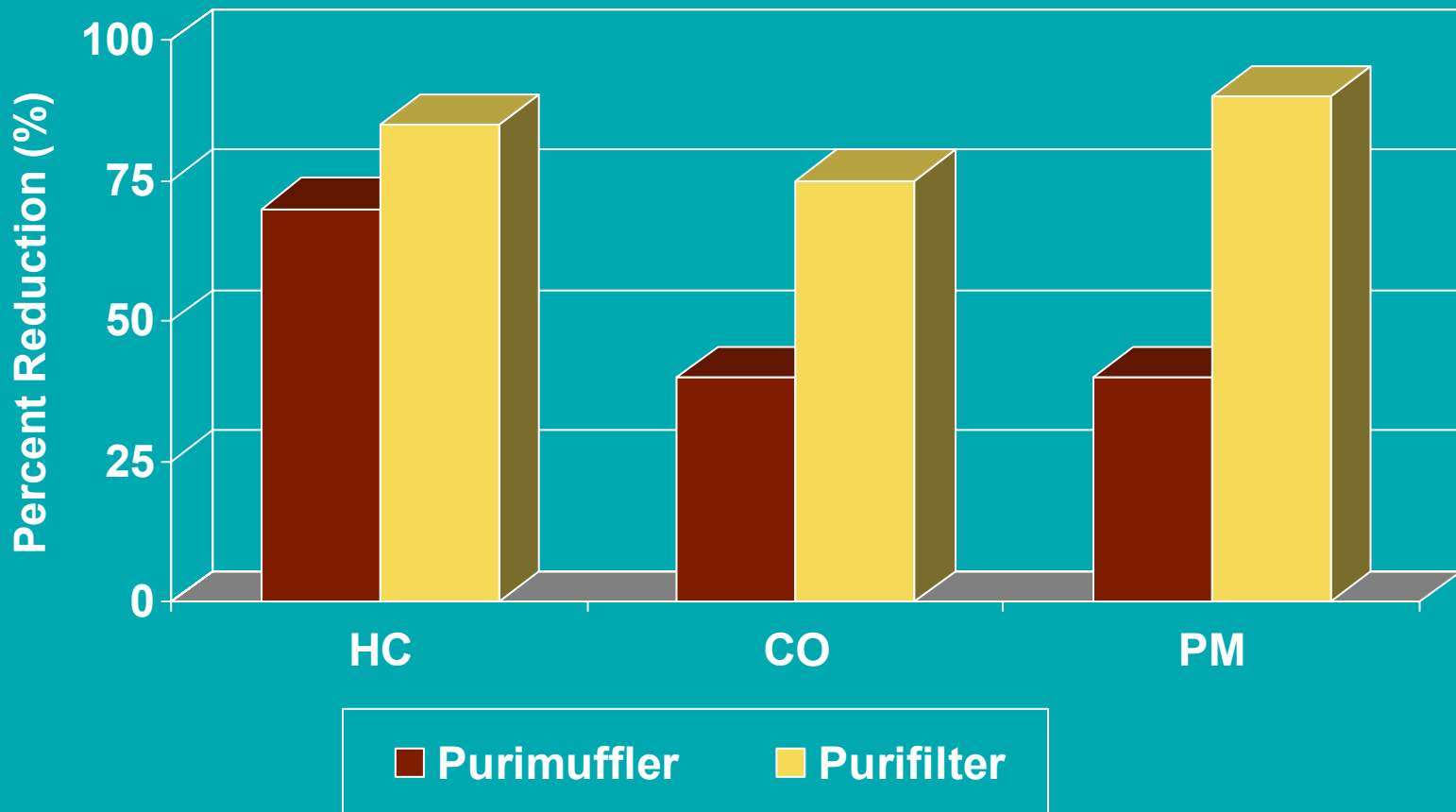
- The use of an oxidation catalyst can MASK engine problems, so regular engine maintenance is required.

# AZ Purifier / AZ Purimuffler Verifications

- ✓ California Air Resources Board (Level I PM reduction)
- ✓ California Air Resources Board (Level II PM reduction)
- ✓ US EPA (up to 40% PM reduction)
- ✓ Vehicle Certification Agency of the United Kingdom
- ✓ UK Energy Saving Trust TransportEnergy
- ✓ Swedish Environmental Zones



# Purimuffler VS. Purifilter Performance



# Steps to a successful filter installation

- Consult regulations, laws, enforcement
- Consider cost, usage, and fuel requirements
- Data log and look at space envelope
- Determine product and all accessories
- Schedule installation
- Follow up inspection, warranty forms, reporting
- Maintenance planning
- After sales support

# Purifilter

Filter Material	Silicon Carbide
Regeneration Temperature	280 - 320 C
Regeneration Catalyst	Precious Metal Catalytic Coating
Regeneration Downtime	None
Regeneration Method	Passive Filter Regeneration

# Combifilter

Filter Material	Silicon Carbide or Cordierite
Regeneration Temperature	Not Required
Regeneration Catalyst	Electrical Connection
Regeneration Downtime	60 minutes to 8 hours
Regeneration Method	Active Filter Regeneration

# Filter Verifications

- ✓ CARB – Purifilter – On-road (Level III PM reduction)
- ✓ CARB – Combifilter – Off-road (Level III PM reduction)
- ✓ US EPA (90% PM reduction)
- ✓ Vehicle Certification Agency of the United Kingdom
- ✓ UK Energy Saving Trust TransportEnergy
- ✓ Swedish Environmental Zones
- ✓ VERT

# Installation

- Remove the muffler and install the Purifilter with new clamps
- Due to the increase in weight, additional support brackets may be required
- Depending on the temperature trace, wrapping the exhaust pipe upstream of the filter with an insulation wrap may be required
- Make sure if the DPF is rigid to the chassis there is flex before the inlet of the Purifilter
- If the DPF is part of the engine, the flex must be installed after the DPF
- The backpressure monitor must also be connected in a visible location for the driver

# Maintenance

- The Purifilter is not a maintenance free product
- Every diesel particulate filter requires periodic maintenance regardless of brand or mileage or vehicle hours

Vehicle Type	Engine Hours	Miles	Yearly
Urban Buses & Solid Waste Fleets	1000-1500	20,000 to 30,000	1-2
School Buses	1000	20,000	1
Service & Short Haul	1500	20,000 to 50,000	1
Delivery Fleets and Non-road	1000-1500		1

- Ash must be cleaned out according to stringent maintenance instructions
- Failure to clean the filter as required can result in the warranty being revoked

# CombiClean™

- Diesel particulate filter cleaning station designed to safely perform maintenance on all DPF's
- Easiest and most efficient way to clean and restore a filter
- Built with over 25 years proven regeneration technology
- 3-step system of vacuum – heat – vacuum
- Vacuum system removes soot and ash from filters
- Does not allow contaminants to escape into the air
- Clean cordierite and silicon carbide filter blocks between 3 and 20 liters





# ECS/EGS technology summary

- The right product for the right application
- Normal engine maintenance is more important than ever
- Consider all new parts that you may need and schedule appropriately
- Keep all regulators informed of your plans, progress and successes
- You have also bought after sales support and service

# Thank You

## Engine Control Systems

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